Before the
Department of Commerce
National Telecommunications and Information Administration

In the Matter of	)	
	)	
Development of the Nationwide	)	Docket No. 120928505-2505-01
Interoperable Public Safety Broadband	)	
Network	)	

COMMENTS OF THE LOS ANGLES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY (LA-RICS)

Patrick J. Mallon
Executive Director
Los Angeles Regional Interoperable Communications System Authority
2525 Corporate Place, Suite 200
Monterey Park, CA 91754-7661
(323) 881-8290
Pat.mallon@la-rics.org

I. Introduction

The Los Angeles Regional Interoperable Communications System (LA-RICS) Authority is a collaborative effort of law enforcement, fire service and health service professionals with elected and appointed officials working towards the goal of providing a single, unified voice and data communication platform for regional public safety agencies. LA-RICS will address the greatest emergency preparedness and homeland security need in the Los Angeles region, and is the most comprehensive project of its kind in the nation.

LA-RICS will connect over 50 law enforcement agencies, 31 fire departments, as well as health, transportation and education agencies in 88 cities in the County, covering a 4,084 square mile area through one voice and data communication system. The LA-RICS Authority, to date, has been awarded more than $200 million in Federal grants for the development of a Long Term Evolution (LTE) broadband mobile data system (the LA SafetyNet Project) and a Land Mobile Radio (LMR) system.

Overall, the LA-RICS Authority concurs with the FirstNet objectives for establishing the Nationwide Public Safety Broadband Network (NPSBN). Those objectives, as highlighted in the overview presentation at the inaugural FirstNet Board meeting in September, 2012, highlight some of the foundational precepts for the NPSBN.

The LA-RICS Authority proposes the following four over-arching considerations for FirstNet's review:

1. NPSBN is a National Network based on Regional mission-critical operational requirements.

   Public safety requirements and operations must be foremost in the design of the NPSBN. One size does not fit all, and it will be very important for FirstNet to work closely with all levels of state, local, municipal, and tribal agencies.

2. NPSBN should be the foundation to enable mission-critical voice (PTT).

   We highly encourage FirstNet to embark on development of a technology roadmap and timeline to leverage NPSBN for critical voice communications. Based on the Middle

Class Tax Relief and Job Creation Act of 2012 (HR 3630), many of the largest metropolitan areas in the U.S. will be required to vacate T-Band spectrum, the dominant communications spectrum for first responder emergency response to the majority of citizens in the U.S.

3. FirstNet must take into account the harmonization of divergent interests in commercial and public sector missions.

   The FirstNet presentation appears to highlight the NPSBN as a network employing only commercial assets, which are deployed and operated by commercial carriers. Although we agree that there will be viable avenues for collaboration between public safety and commercial carriers, we respectfully remind the Board that the NPSBN will be an integral component of our Critical National Infrastructure. As such, it will demand a higher need for redundancy and survivability than commercial networks. Additionally, the FirstNet Board should anticipate considerable push-back from public safety organizations if state, local, municipal, and tribal agencies lose influence over the design, deployment, and access to the NPSBN.

4. FirstNet should consider deploying an initial network proof of concept site with sufficient complexity and user base to validate the technology, architecture, business model, procurement, and cost effectiveness.

   As with any design, deployment, and operation of large and highly complex communications systems, a concept validation process should be undertaken to verify

the proposed technology, architecture, business model, procurement, and cost analysis processes. We propose that there is no better region than the Los Angeles area to test the viability of concepts and processes. This region effectively mirrors the complexity of the NPSBN initiative. Multiple stakeholders, myriad business rules across dozens of public safety and public sector agencies, and a user base consisting of tens of thousands of users is the best scenario to demonstrate that viability. Additionally, LA-RICS is already a recipient of Broadband Technology Opportunities Program (BTOP) funding for the LASafetyNet, and therefore is uniquely positioned to provide FirstNet realistic operational and business conditions that will support the high level of confidence necessary to roll out a viable national public safety system that meets the goals and objectives of FirstNet.

In addition to the above high-level considerations, the LA-RICS Authority provides the following considerations and recommendations to assist FirstNet with the conceptualization and eventual implementation of the NPSBN.

II. Additional Information Should Be Presented To Public Safety

Based on the information presented at the FirstNet Board's first meeting in September 2012, we are encouraged by the speed at which FirstNet is progressing. While we applaud the FirstNet Board for using the kickoff meeting to deliver the high-level NPSBN architecture concept, the presentation understandably did not provide sufficient depth to facilitate detailed review and analysis. There are still many unknowns regarding the FNN architecture and we look forward to working in partnership with FirstNet and its subcommittees on the needs of

public safety. The LA-RICS Authority encourages FirstNet to conduct a dedicated NPSBN architecture meeting with the public safety community in order to provide a detailed and comprehensive review of the FNN architecture, discuss NOI comments and findings, and update the architecture based on the NOI comments. This approach will ensure that the public safety community is provided the opportunity to substantially engage in the detailed description of the FNN concept and FirstNet's expectations for delivery of the network.

III. Network Availability and Reliability

The FNN proposal incorporates a novel approach to increase network reliability for public safety and deliver access to redundant commercial networks. The concept of "Multiple Network Diversity Increases Reliability" is intriguing, but the LA-RICS Authority is concerned about the feasibility of the solution, given that it is currently unavailable, and seeks the opportunity to discuss with FirstNet the ability of the solution to meet the stated goals of increasing network availability and reliability.

The LA-RICS Authority believes that achieving high standards for network availability and reliability are essential outcomes for the proposed system and we realize that many solutions may assist FirstNet as it seeks to finalize the FNN architecture. The Authority has some reservations regarding the capability of existing commercial services to provide adequate reliability during emergency incidents when compared to the public safety grade communications systems currently deployed. For example, the current use of redundant backhaul connectivity and backup generator power at most or all public safety communication sites, illustrates a means by which the public safety community has employed redundancy to

address the need for a high level of system reliability. The LA-RICS Authority requests that FirstNet consider options such as these when balancing solutions for network availability and redundancy.

This multiple network solution can potentially provide redundancy in some situations, but it is unlikely to adequately address the most critical operational scenarios. The solution will provide coverage where commercial service exists outside of the Band Class 14 service area. These areas could be where the FNN does not provide service or in areas where a network outage exists. Where the second through fifth network options provide service, these "backup" commercial networks will likely be adequate for normal day-to-day operational scenarios.

Additionally, if the FNN fails due to hardware, software, or maintenance issues, the redundancy provided by commercial networks is critical to maintain communications. However, if the network outage is due to some catastrophic event, such as an earthquake or as recently experienced with Superstorm Sandy, the likelihood of correlated outages of all commercial networks increases. The same is true for events that drive massive amounts of traffic to commercial networks, such as terrorism incidents. In these cases, where reliable communications is most critical, commercial networks are just as likely to be unavailable due to widespread outages or congestion. Therefore, the LA-RICS Authority believes the FNN should be public safety grade and highly available on its own. There are additional challenges associated with Multiple Network Diversity and the LA-RICS Authority would seek the opportunity to offer both questions and solutions to FirstNet.

IV. Integration of Existing Government Assets

The FNN architectural concept, as presented during the board meeting, focused on commercially available wireless sites and perhaps backhaul transport. There are thousands of commercially available wireless sites that could provide the NPSBN radio access network (RAN) connectivity and backhaul transport to the Evolved Packet Core (EPC). However, the NPSBN would incur lease costs to integrate these facilities into the FNN. These recurring costs will have a significant impact on the NPSBN operations budget and may result in higher usage fees if not supplemented with government owned assets.

The LA-RICS Authority believes that the network should balance the commercially available assets with existing government assets in each proposed service area. We request that FirstNet collaborate with state, local, municipal, and tribal public safety agencies to maximize the use of existing government resources when designing and deploying the FNN. The LA-RICS Authority recognizes the challenges in contracting for government assets for integration into the FNN, but we expect that there are significant long-term cost benefits in pursuing government assets. These existing assets meet public safety grade operational requirements, which include backup generators and other redundant infrastructure (as noted above), and fiber optic or microwave backhaul transport capabilities that collectively ensure greater reliability.

Government assets bring tangible benefits if they are integrated into the FNN. These assets are typically:

1. Designed to stringent operational requirements;

2. Available in rural environments where commercial carriers may not see value in servicing;
3. Secure facilities that may satisfy sensitive law enforcement access requirements;
4. Self-maintained under local/state government service contracts;
5. Able to provide public safety "buy-in" and depending on contract mechanism, can provide discounted NPSBN service access.

By integrating these assets into the FNN, FirstNet will minimize the capital investments and recurring costs required to implement and maintain a public safety grade infrastructure while providing a return on the investment of taxpayers and government agencies for their prior investments in public safety infrastructure.

V. Business Models

In the architecture presentation, FirstNet discussed the need to leverage existing commercial networks in addition to commercial assets. The LA-RICS Authority agrees that commercial carriers can bring significant resources to the FNN, but they also incur annual operations cost for tower space, backhaul, and other operational expenses. The LA-RICS Authority is concerned that commercial carriers will pass through the integration and recurring maintenance costs associated with the NPSBN on existing commercial infrastructure to the public safety community. Therefore, we request that FirstNet solicit, review, and consider all possible business models in an effort to maximize competition.

As a BTOP recipient, LA-RICS has developed operational and technical requirements that meet the functionality desired by first responders in our region and may be delivered by vendors who

utilize multiple business models. Ultimately, there are tradeoffs between vendors, and the various business models they propose, but we request that FirstNet solicit all available solutions that meet the needs of the public safety community.

VI. Collaboration

The LA-RICS Authority seeks the opportunity to collaborate with FirstNet and your committees to ensure that public safety requirements are defined, understood, and integrated into the FNN architecture. By working with the nation's public safety community and listening to their operational requirements, FirstNet will be in a position to build a network that meets their stakeholder's needs, both regionally and nationally, while achieving buy-in from the public safety community. We recognize that our response to this NOI is the first step in this effort of engagement and we look forward to similar efforts in the future.

The LA-RICS Authority recognizes that FirstNet cannot dialog with every public safety agency across the country and that the responses to the SOR and this NOI represent efforts to engage the public safety community on a wide scale. We are concerned with the timeline depicted in the FNN presentation indicating a rollout in the 2013 to 2014 timeframe. We believe that this expedited rollout schedule will not provide sufficient time for the collection and coordination of public safety requirements through the State and Local Grant Planning Program (SLGPP), since it is not expected to commence for another six months and will begin with governance and planning, not fundamental data collection. Estimates indicate that it will take 12 to 18 months to collect comprehensive data regarding public safety requirements. If FirstNet begins implementation of an initial solution without fully capturing public safety's requirements, the

first phase solution may not meet public safety needs and may result in limited adoption. If FirstNet and the public safety community collaborate to create a network that represents all stakeholder interests, including those from the commercial marketplace, the nation will have a robust NPSBN that achieves the goals of FirstNet and meets the expectations and operational requirements of the public safety community.

VII. Phase-One Demonstration Network

We believe that LA-RICS is in a unique position to serve as a Phase-One Demonstration Network for the NPSBN. The LA-RICS Authority has prepared network specifications and planning documents and has over $154.6 million in BTOP funding, plus matching LA-RICS Authority funding. With the endorsement of FirstNet, the LA-RICS Authority can request a lift of the partial BTOP suspension from NTIA so that we can move forward and restart deployment of the LASafetyNet project. LA-RICS believes it is in the best interest of the NPSBN to remove current BTOP grant restrictions and allow early builders to deploy LTE networks now. This is an urgent matter for the LA-RICS Authority that will deliver much needed mission critical broadband data communications to our community. The Authority has expended considerable effort and resources over the past two years and a solid foundation is in place to quickly advance network implementation.

Early deployment of the LASafetyNet can also provide immediate benefits to FirstNet and to the national public safety community. The lessons learned from our early deployment will offer valuable benchmarks and provide a unique Demonstration Network over which a host of capabilities and applications essential to public safety can be tested and advanced.

Additionally, restarting the network implementation now will provide important economic opportunities to the region and country. Most importantly, early deployments represent progress, deliver a promising message to the community, and advance public safety direct participation. As we indicated in our recent letter to FirstNet Chairman Ginn, we are interested in joining FirstNet's newly established working group focused on BTOP funds and applicants to support this process. We look forward to participation on this working group.

VIII. Broadband Push-To-Talk

The Middle Class Tax Relief and Job Creation Act of 2012 requires that public safety relinquish the T-Band spectrum, a significant band of radio spectrum supporting mission critical voice communications. This issue is particularly challenging to LA-RICS, and our 86 member agencies, since there is an immediate need to replace our current mission critical radio network. The current systems are long past their beneficial use and do not meet interoperable communications requirements in the Greater Los Angeles region. An ongoing program to modernize our land mobile radio capabilities in the region requires a hybrid architecture of T-Band and 700 MHz spectrum to meet our communications objectives. LA-RICS Authority members regularly depend on both mission critical and non-mission critical transmissions to support basic and emergency communications requirement. The LA-RICS network is designed to support all end-user interoperable communications needs.

The LA-RICS Authority has studied the T-Band "give back" mandate and believes the only viable strategy to vacate T-Band without impact on LA-RICS member agencies, is a solution based on additional narrowband spectrum and a robust public safety broadband network with push-to-

talk capabilities. The strategy will satisfy non-mission critical voice communication over broadband and mission critical voice communication over narrowband. At the same time, the LA-RICS Authority recognizes that we need substantial broadband capacity for broadband applications. Therefore, we will need to work together to ensure that our net spectrum needs are met and the capacity allocated to voice over broadband does not negatively impact other critical applications.

IX. Inclusion of Secondary Responders

The Authority requests that FirstNet consider the role of "secondary responders" on the NPSBN. During emergency incidents, secondary responders are front line resources that require interoperable voice and data communications with all incident responders. Secondary responders comprise a substantial percentage of the overall public safety traffic and spectrum use in most major metropolitan areas. We ask that FirstNet incorporate secondary responders as normal system users and create a plan for their inclusion in the NPSBN.

Presently, laws may not define secondary responders as "public safety" network users or personnel, but LA-RICS and most law enforcement, fire, and EMS agencies across the country recognize that secondary responders are a critical component of the protection of life and property. If secondary responders are not provided status and access to the broadband network it could be a detriment to widespread FNN adoption since state, local, municipal, and tribal agencies will have to maintain a separate system for these users. Ultimately, we need to begin a dialog regarding the definition of "primary" and "secondary" users now to ensure that

this definition best suits public safety. In our opinion, the interpretation of eligible users of the broadband network should be similar to that of mission critical voice networks.

X. Balancing National and Local Needs

Based on our broadband implementation and network operations plans, LASafetyNet would provide autonomous local control, within various regulatory guidelines, over how the network would be constructed, maintained, and upgraded. Additionally, we described the features, performance, and capabilities of the network and how it would be deployed. In the new paradigm, our interpretation is that FirstNet would authorize a commercial cellular carrier to control the network. The NPSTC "Local Control in the Nationwide Public Safety Broadband Network" document[1], discusses the need for additional levels of control within the network such as the ability to dynamically change user priorities and to receive real-time information on users, applications and other data. This monitored information will help determine how to change these user priorities to suit real-time network access and use. Based on current commercial partnerships within the LA-RICS membership, these capabilities would be limited on a NPSBN operated by a commercial carrier.

XI. Affordability

The NPSBN should be a competitively bid network from a cost perspective in order for it to experience widespread adoption by the public safety community. If the FirstNet service is equal to or more expensive than commercial services, budget constraints may hinder wide

[1] See http://npstc.org/download.jsp?tableId=37&column=217&id=2254&file=LC21%20Local%20Control%20Definition%20Rev%20F.pdf

scale adoption. The LA-RICS Authority requests that FirstNet consider expanding the user base to be inclusive of secondary responders to not only meet operational requirements as mentioned above, but also to spread operational cost over a wider subscriber base.

The Act requires NPSBN users to purchase service for the first responder community from FirstNet while directing secondary responders, from the same jurisdictions, to purchase service from a commercial provider. Leveraging secondary responders will help augment the sustainability of the network and suppress the resulting user fees.

XII. Subscriber Equipment

In order to meet the goals of the Spectrum Act, FirstNet will need to maximize adoption by public safety agencies across the country. A means to accomplish widespread adoption is to provide a device that supports all data usage requirements. There are limited devices and applications for some user communities. For example, while a smartphone type device may work in most law enforcement scenarios, it is not an appropriate solution for firefighters. The firefighter community may initially need a data device without a user interface that provides real-time information to incident commanders on biometrics and incident location. As part of FirstNet's on-going outreach efforts, the LA-RICS Authority recommends an effort focused on collecting device and application information from all users to ensure that the NPSBN benefits all public safety communities.

At the same time, many users in our community will seek devices similar to those currently available from commercial cellular carriers at a low cost. It is critical that FirstNet secure a collective understanding from all public safety users across the country now to develop

economies of scale that drive device costs down. Ultimately, high device costs could be another major barrier to entry for the nation's public safety community.

XIII. Existing and Future Applications

Based on the NOI, FirstNet seeks information on how to enhance the availability of applications over the NPSBN. We believe that LA-RICS member agencies will be able to port all of their existing applications over to the NPSBN and freely upgrade as the agencies' needs dictate. There may be some benefit to moving to hosted FirstNet services or new applications that FirstNet delivers. Core applications such as email, web browsing (and web apps), Computer Aided Dispatch (CAD), and others are being provided by our member agencies directly, and will continue to be provided by those agencies. We request that the NPSBN be a conduit for those applications without undue restriction.

Presently, we do not have a consensus on which applications should be "developed" by FirstNet (directly or indirectly). The recommendations regarding security, delivery platforms, interfaces, and certifications are a function of the types of applications for which FirstNet is responsible. Applications that are hosted and managed by state, local, municipal, and tribal agencies will likely be managed and selected by those entities while FirstNet focuses on applications that are part of the Service Delivery Platform or where there is a role for FirstNet managed application interoperability.

The LA-RICS Authority has not yet undertaken an effort to determine which applications require a national role, and therefore, it is difficult to determine the best way to secure, distribute, integrate, and certify those applications without first defining the applications. We request

that FirstNet conduct a comprehensive market analysis and provide public safety with time to provide input on this subject. Ideally, this work will be performed during the state and local grant planning process with the product of the planning processes shared with FirstNet in order to develop a clear vision of each application's objectives. We believe the SAFECOM Advisory Group could be a valuable resource to support this effort and provide FirstNet with a catalog of potential prioritized applications.

XIV. Conclusion

The LA-RICS Authority appreciates the opportunity to communicate these comments to FirstNet. This is a tremendous opportunity for public safety and the public we serve. In order to capitalize on this unique opportunity the LA-RICS Authority believes the key to a successfully deployed nationwide broadband network that meets public safety operational needs is collaboration with end-users. We stand ready to participate in any form to ensure the success of this project. We offer our full support to the FirstNet Board as you begin this complex, but critically important process.